

## **MARK G. P. SAIFER, PH. D.**

Vice President and Scientific Director  
Mountain View Pharmaceuticals, Inc.

### **Education:**

University of Pennsylvania	A.B.	1960	Natural Science
University of California, Berkeley	Ph.D.	1966	Biophysics
University of California, Berkeley	Postdoctoral Fellow	1966-68	Bacteriology and Immunology

### **Professional Experience:**

1968-1970	Senior Cancer Research Scientist, Roswell Park Memorial Institute, Buffalo, NY
1970-1971	Research Scientist, Diagnostic Data, Inc., Mountain View, CA
1971-1972	Research Laboratory Director, Diagnostic Data, Inc.
1972-1978	Director, Research and Quality Assurance Laboratories, Diagnostic Data, Inc.
1978-1981	Vice President, Manufacturing and Quality Control, Diagnostic Data, Inc.
1981-6/95	Vice President, Diagnostic Data, Inc. (The company name was changed to DDI Pharmaceuticals, Inc., in 1985 and to Oxis International, Inc., in 1994.)
7/95-10/95	Senior Scientist, Oxis International, Inc., Mountain View, CA
11/95-5/96	Consultant, Oxis International, Inc., Portland, OR
6/96-present	Vice President and Scientific Director, Mountain View Pharmaceuticals, Inc.

### **Professional Society Memberships:**

American Association of Pharmaceutical Scientists; International Society for Free Radical Research; Oxygen Society; Parenteral Drug Association; American Association for the Advancement of Science - Life Member

### **Selected Patents:**

- Huber W, Chow S H, **Saifer** M G P (1974)  
Enzymatic treatment of protein mixtures containing orgotein.  
U S Patent No. 3,806,411; issued in 25 additional countries.
- Huber W, **Saifer** M G P, Williams L D (1977) Cross-linked orgotein.  
U S Patent No. 4,009,267; issued in eight additional countries.
- Huber W, **Saifer** M G P, Williams L D (1977) Acylated orgotein.  
U S Patent No. 4,017,605; issued in 14 additional countries.
- Saifer** M G P, Williams L D, Huber W (1977)  
Reduction of superoxide accumulation caused by smoke inhalation.  
U S Patent No. 4,022,224
- Huber W, **Saifer** M G P, Williams L D (1977) Radioactive labeled orgotein.  
U S Patent No. 4,022,877; also issued in Canada.
- Huber W, **Saifer** M G P, Williams L D (1977) Esterified orgotein.  
U S Patent No. 4,022,888; issued in seven additional countries.
- Huber W, **Saifer** M G P, Williams L D (1977) Alkylated orgotein.  
U S Patent No. 4,042,689; issued in seven additional countries.

Huber W, **Saifer** MGP, Williams LD (1978) N-Carbamylated orgotein.  
US Patent No. 4,070,459; issued in seven additional countries.

**Saifer** M, Somack R, Williams LD (1991) Conjugates of superoxide dismutase coupled to high molecular weight polyalkylene glycols.  
US Patent No. 5,006,333; issued in 24 additional countries.

**Saifer** M, Somack R, Williams LD (1992) Conjugates of superoxide dismutase coupled to high molecular weight polyalkylene glycols.  
US Patent No. 5,080,891

**Saifer** M, Somack R, Williams LD (1994) Intermediates for conjugation of polypeptides with high molecular weight polyalkylene glycols.  
US Patent No. 5,283,317

**Saifer** M, Somack R, Williams LD (1995) Conjugates of superoxide dismutase coupled to high molecular weight polyalkylene glycols.  
US Patent No. 5,468,478

Williams LD, Hershfield MS, Kelly SJ, **Saifer** MGP, Sherman MR (2000). PEG-urate oxidase conjugates and use thereof.  
PCT Publication No. WO 2000/07629, Mountain View Pharmaceuticals, Inc., and Duke University; granted or allowed in 36 countries.

Sherman MR, **Saifer** MGP, Williams LD, Hershfield MS, Kelly SJ (2001). Aggregate-free urate oxidase for preparation of non-immunogenic polymer conjugates.  
PCT Publication No. WO 2001/59078, Mountain View Pharmaceuticals, Inc., and Duke University; granted or allowed in 34 countries.

**Saifer** MGP, Williams LD (2001) Quantitation of viruses by light scattering.  
US Patent No. 6,316,185 B1

**Saifer** MGP, Williams LD (2003) Quantitation of viruses by light scattering.  
US Patent No. 6,544,770 B2

Williams LD, Hershfield MS, Kelly SJ, **Saifer** MGP, Sherman MR (2003). PEG-urate oxidase conjugates and use thereof.  
US Patent No. 6,576,235 B1, Mountain View Pharmaceuticals, Inc., and Duke University.

**Saifer** MGP, Williams LD (2004) Quantitative detection of viruses by light scattering.  
European Patent EP 1 218 722 B1; validated in three countries.

Sherman MR, **Saifer** MGP, Williams LD, Hershfield MS, Kelly SJ (2004). Aggregate-free urate oxidase for preparation of non-immunogenic polymer conjugates.  
US Patent No. 6,783,965 B1, Mountain View Pharmaceuticals, Inc., and Duke University.

Martinez AL, Sherman MR, **Saifer** MGP, Williams LD (2004). Polymer conjugates with decreased antigenicity, methods of preparation and uses thereof.  
US Patent Application Publication No. 2004/0062746 A1, Mountain View Pharmaceuticals, Inc.

Martinez AL, Sherman MR, **Saifer** MGP, Williams LD (2004). Polymer conjugates with decreased antigenicity, methods of preparation and uses thereof.  
PCT Publication No. WO 2004/060617 A2, Mountain View Pharmaceuticals, Inc.; granted or allowed in 15 countries.

**Saifer** MG P, Martinez AL, Williams LD, Sherman MR (2004). Polymer conjugates of interferon-beta with enhanced biological potency.  
US Patent Application Publication No. 2004/0126361 A1, Mountain View Pharmaceuticals, Inc.

**Saifer** MG P, Martinez AL, Williams LD, Sherman MR (2004). Polymer conjugates of interferon-beta with enhanced biological potency.  
PCT Publication No. WO 2004/060299 A2, Mountain View Pharmaceuticals, Inc.; granted or allowed in 12 countries.

Bhaskaran SS, Sherman MR, **Saifer** MG P, Williams LD (2004). Polymer conjugates of cytokines, chemokines, growth factors, polypeptide hormones and antagonists thereof with preserved receptor-binding activity.  
US Patent Application Publication No. 2004/0136952 A1, Mountain View Pharmaceuticals, Inc.

Bhaskaran SS, Sherman MR, **Saifer** MG P, Williams LD (2004). Polymer conjugates of cytokines, chemokines, growth factors, polypeptide hormones and antagonists thereof with preserved receptor-binding activity.  
PCT Publication No. WO 2004/060300 A2, Mountain View Pharmaceuticals, Inc.; granted or allowed in 10 countries.

Williams LD, Hershfield MS, Kelly SJ, **Saifer** MG P, Sherman MR (2005). PEG-urate oxidase conjugates and use thereof.  
European Patent EP 1 100 542 B1, Mountain View Pharmaceuticals, Inc., and Duke University; validated in 19 countries.

Sherman MR, **Saifer** MG P, Williams LD, Hershfield MS, Kelly SJ (2005). Aggregate-free protein compositions and methods of preparing same.  
US Patent Application Publication No. 2005/0014240 A1, Mountain View Pharmaceuticals, Inc., and Duke University.

Sherman MR, Martinez AL, Bhaskaran SS, Williams LD, **Saifer** MG P, French JA (2007). Polymer conjugates of proteinases.  
US Patent No. 7,229,810 B2, Mountain View Pharmaceuticals, Inc.

Sherman MR, Martinez AL, Bhaskaran SS, Williams LD, **Saifer** MG P, French JA (2008). Polymer stabilized proteinases.  
European Patent EP 1 421 175 B1, Mountain View Pharmaceuticals, Inc.; validated in 10 countries.

Williams LD, Hershfield MS, Kelly SJ, **Saifer** MG P, Sherman MR (2008). PEG-urate oxidase conjugates and use thereof.  
US Patent Application Publication No. 2008/0031864 A1, Mountain View Pharmaceuticals, Inc., and Duke University; Notice of Allowance received December 1, 2010.

Sherman MR, **Saifer** MG P, Williams LD, Hershfield MS, Kelly SJ (2010). Aggregate-free urate oxidase for preparation of non-immunogenic polymer conjugates.  
European Patent EP 1 254 237 B1; Mountain View Pharmaceuticals, Inc., and Duke University; validated in 20 countries.

Williams LD, Hershfield MS, Kelly SJ, **Saifer** MG P, Sherman MR (2010). PEG-urate oxidase conjugates and use thereof.  
US Patent No. 7,723,089 B2, Mountain View Pharmaceuticals, Inc., and Duke University.

Williams LD, Hershfield MS, Kelly SJ, **Saifer** M G P, Sherman MR (2011). PEG-urate oxidase conjugates and use thereof.  
European Patent EP 1 588 716, Mountain View Pharmaceuticals, Inc., and Duke University; publication expected February 16, 2011.

## **Publications and Presentations:**

Huber W, Menander-Huber K B, **Saifer** M G P, Dang P H-C (1977) Studies on the clinical and laboratory pharmacology of drug formulations of bovine Cu-Zn superoxide dismutases (orgotein). In: Perspectives in Inflammation, Future Trends and Developments, Willoughby DA, Giroud J P, Velo G P, eds., University Park Press, Baltimore, pp 527-540.

Huber W, **Saifer** M G P (1977) Orgotein, the drug version of bovine Cu,Zn superoxide dismutase: I. A summary account of safety and pharmacology in laboratory animals. In: Superoxide and Superoxide Dismutases, Michelson A M, McCord J M, Fridovich I, eds., Academic Press, London, pp 517-536.

Huber W, **Saifer** M G P, Williams L D (1980) Superoxide dismutase pharmacology and orgotein efficacy: New perspectives. In: Developments in Biochemistry, Vol. 11B, Bannister W H, Bannister J V, eds., Elsevier, Amsterdam, pp 395-407.

Williams L D, **Saifer** M G, Dang P H-C, Huber W (1980) Development of an arthus-like model of induced inflammation and its use in the anti-inflammatory characterization of orgotein (bovine Cu,Zn superoxide dismutase). In: Inflammation: Mechanism and Treatment, Willoughby DA, Giroud J P, eds., MTP Press, Lancaster, UK, pp 149-156.

Huber W, Menander-Huber K B, **Saifer** M G P, Williams L D (1980) Bioavailability of superoxide dismutase: Implications for the antiinflammatory action mechanism of orgotein. Agents and Actions Supplement 7:185-195.

**Saifer** M G P, Williams L D, Dang P H-C, Somack R, Sloan C, Miranda Q R (1986) Orgotein, the drug version of bovine copper, zinc superoxide dismutase: III. Properties of injectable superoxide dismutase. In: Superoxide and Superoxide Dismutase in Chemistry, Biology and Medicine, Rotilio G, ed., Elsevier, Amsterdam, pp 493-496.

Somack R, **Saifer** M G P, Williams L D (1991) Preparation of long-acting superoxide dismutase using high molecular weight polyethylene glycol (41,000-72,000 daltons), Free Radical Research Communications 12-13:553-562.

**Saifer** M G, Somack R, Williams L D (1993) Plasma clearance and immunologic properties of long-acting superoxide dismutase prepared using 35,000-120,000 dalton polyethylene glycol (PEG). Sixth International Conference on Superoxide and Superoxide Dismutase, Kyoto, Japan.

**Saifer** M G P, Somack R, Williams L D (1994) Plasma clearance and immunologic properties of long-acting superoxide dismutase prepared using 35,000-120,000 dalton poly-ethylene glycol (PEG). In: Frontiers of Reactive Oxygen Species in Biology and Medicine, Asada K, Yoshikawa T, eds., Elsevier, Amsterdam, pp 423-424.

**Saifer** M G P, Somack R, Williams L D (1994) Plasma clearance and immunologic properties of long-acting superoxide dismutase prepared using 35,000 to 120,000 dalton poly-ethylene glycol (PEG). In: Free Radicals in Diagnostic Medicine: A Systems Approach to Laboratory Technology, Clinical Correlations and Anti-oxidant Therapy, Armstrong D, ed., Plenum, New York, pp 377-387.

- Smith R A, Balis F M, Ott K H, Elsberry D D, Sherman M R, **Saifer** M G P (1995) Pharmacokinetics and tolerability of ventricularly administered superoxide dismutase in monkeys and preliminary clinical observations in familial ALS. Journal of the Neurological Sciences 129 (Suppl):13-18.
- Saifer** M G P, Williams L D, Sherman M R, French J A, Kwak L W, Oppenheim J J (1997) Improved conjugation of cytokines using high molecular weight poly(ethylene glycol): PEG-GM-CSF as a prototype. Polymer Preprints 38:576-577.
- Sherman M R, Williams L D, **Saifer** M G P, French J A, Kwak L W, Oppenheim J J (1997) Conjugation of high molecular weight poly(ethylene glycol) to cytokines: Granulocyte-macrophage colony-stimulating factors as model substrates. In: Poly(ethylene glycol) Chemistry and Biological Applications. ACS Symposium Series 680, Harris J M, Zalipsky S, eds., American Chemical Society, Washington, DC, pp 155-169.
- Kelly S J, Delnomdedieu M, Oliverio M I, Williams L D, **Saifer** M G P, Sherman M R, Coffman T M, Johnson G A, Herschfield M S (2001) Diabetes insipidus in uricase-deficient mice: A model for evaluating therapy with poly(ethylene glycol)-modified uricase. J Am Soc Nephrol 12:1001-1009.
- Sherman M R, **Saifer**, M G P, Perez-Ruiz, F (2008). PEG-uricase in the management of treatment-resistant gout and hyperuricemia. Adv Drug Deliv Rev 60:59-68.